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EXAMINER	
TUROCY, DAVID P	
ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,323	BAUMANN ET AL.	
	Examiner	Art Unit	
	DAVID TUROCY	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/25/06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claims 1-21, the phrase "in particular" or “particularly” renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Such a recitation is located at least in claims 1, 15, 19, and 21. Please review all claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 9-18, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 0227063 by Gordon et al, hereafter Gordon.

Claim 1: Gordon discloses a method for depositing at least one layer on at least one substrate in a process chamber, the layer comprising at least two components, at least a first metallic component being vaporized into a heated carrier gas, in particular a heated by means of a discontinuous injection of a first starting material in the form of a liquid or a first starting material dissolved in a liquid, and at least a second

component being supplied as a chemically reactive starting material, characterized in that the starting materials are introduced alternately into the process chamber (examples, figures, pages 25-29)

Claim 2: Gordon discloses the second component is a chemically reactive gas or a chemically reactive liquid (examples, figures, pages 25-29).

Claim 3: Gordon discloses the chemically reactive liquid is vaporized (examples, figures, pages 25-29).

Claim 9: Gordon discloses at least one inert carrier gas (16) is introduced directly into the process chamber (2) (example 12)

Claims 10-12: Gordon discloses water vapor as the second component (example 12).

Claim 13: Gordon discloses the pressure in the process chamber is 0.15 Torr, which is below 100 mbar, 50 mbar, 20 mbar and 10 mbar (example 12).

Claim 14: Gordon discloses using one or more of the following metals: Al, Si, Pr, Ge, Ti, Zr, Hf, Y, La, Ce, Nb, Ta, Mo, Bi, Nd, Ba, W or Gd and using liquids and solids dissolved in liquids (examples, Tables)

Claim 15: Gordon discloses three dimensional structured conformal coating (figure 3 and accompanying text).

Claim 16: The films as taught by Gordon will have the properties as claimed because Gordon discloses the same or substantially similar film depositions (see examples).

Claim 17: Gordon discloses metal oxides among others (examples).

Claim 18: Gordon discloses injection nozzles which can be closed by valves (see figures) and the metal oxide is produced in such a manner.

Claim 21: Gordon discloses an apparatus for depositing at least one layer on at least one substrate in a process chamber, the layer comprising at least two components, at least a first metallic component being vaporized into a carrier gas, in particular a heated carrier gas, by means of a discontinuous injection of a first starting material in the form of a liquid or a first starting material dissolved in a liquid, and at least a second component being supplied as a chemically reactive starting material, characterized in that the starting materials are introduced alternately into the process chamber comprising a process chamber, having a gas inlet member, with which one or more vaporization chambers are associated upstream, which vaporization chambers each have at least one injector unit for discontinuously supplying a liquid (examples, figures, pages 25-29).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon.

Claims 4-5: Gordon discloses all that is discussed in the 35 USC 102(b) rejection above. Additionally, Gordon discloses various arrangements for injecting a solid and/or liquid precursor into a carrier gas, including nebulizing a liquid or a solid dissolved in a liquid into a heated carrier gas, using a ultrasonic or pneumatic means and discloses directly injecting the solution into a “heated zone”. While the reference fails to disclose a “vaporization chamber” as claimed, it is the examiners position that giving the term the broadest reasonable interpretation, the teachings of Gordon reads on a vaporization chamber, which is integral part of the entire apparatus. As for using a single vaporization chamber or multiple vaporization chambers, it is the examiners position that either method of evaporating the solutions would have been obvious to one of ordinary skill in the art to lead to predictable results. Specifically, Gordon discloses pulsing the liquids and discloses "direct injection of the liquids into a heated zone", where there is a plurality of liquids and a single heated zone, therefore one of ordinary skill in the art would expect a single "heated zone" to evaporate the alternative components of the film. Additionally using a evaporation chamber for each component would have been obvious because one would desire to reap the benefits of a vaporization chamber without the requirement of purging to remove the prior component.

Claim 6: Gordon discloses purging with inert gas (examples, figures, pages 25-29).

Claim 7: Gordon fails to explicitly disclose saturation with the component, however, Gordon does disclose supplying enough precursor to deposit an effective film

in a efficient manner and therefore it would have been obvious to one of ordinary skill in the art to have pulsed the appropriate amount of liquid solution into the heated carrier gas to provide a fully saturated carrier gas in order to efficiently supply precursor into the chamber and coat the substrate. If the carrier gas fails to be saturated, less precursor is supplied into the chamber per unit time and therefore one of ordinary skill in the art would desire to eliminate this associated inefficiency.

Claim 8: Gordon discloses the mass of gas that is brought into the vaporization chamber with each injection pulse is determined by means of the pulse length (examples, figures, pages 25-29).

7. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon in view of US Patent Publication 20030138562 by Subramony et al, hereafter Subramony.

Gordon discloses all that is applied above, including depositing a film on a substrate surface, however, the reference fails to disclose the claimed arrangement of the substrates. However, Subramony disclose a known and suitable technique for coating multiple substrates includes placing substrates into a deposition chamber side by side on a substrate holder that are oriented at angles between vertical and horizontal (see figure 1). Therefore, taking the references for all their teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Gordon to use the substrate arrangement as taught by Subramony to reap the benefits of increased throughput or because such is a known technique in the

art and one would expect predictable results in using the process as taught by Gordon with the substrate arrangement as taught by Subramony.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 7410670. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of US Patent 7410670 fully encompass the limitations of the present application and thus anticipate the limitations.

10. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of

copending Application No. 11/572101 (USPP 20090081853). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of Application No. 11/572101 (USPP 20090081853) fully encompass the limitations of the present application and thus anticipate the limitations.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TUROCY whose telephone number is (571)272-2940. The examiner can normally be reached on Monday, Wednesday and Friday from 7 a.m. - 6 p.m., Tuesday and Thursdays 7-10 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Turocy/
Examiner, Art Unit 1792